



**UPDATED: 22 JULY 2005**  
**ENGINEERING CHECKS**  
**LCC 19 CLASS**

"This is a notional checklist based on a common ship class configuration. It is provided as an aid for planning equipment demonstrations. Using the notional checklist and applicable technical documentation (including assessment PMS, ships PMS, EOSS, Tech manuals, and local procedures), ships should develop a tailored demonstration and test checklist for their equipment configuration and submit to the Senior Engineer for review at least 30 days prior to the inspection/trial."

# **MAIN PROPULSION PRE-UNDERWAY PHASE LCC 19**

2210	PROPULSION BOILERS		
Component/Sub-Component	Proposed Procedure	Accepted Procedure	
<b>IDLE BOILER:</b>			
Test F/O safety shutoff/root valves			
Test F/O Quick Closing Valves			
Inspect burner lead bends and flange shields			
Test final control element air locks			
Test F/O service tank bulkhead stop valves			
Test F/O service tank Quick Closing valves			
Test steam smothering system			
Test safety valve hand easing gear			
Test remotely close main steam stop valve			
Test remotely close auxiliary steam stop valve			
<b>ALL BOILERS:</b>			
Test boiler water high/low level alarms			
Test gauge glass hand easing gear			
Inspect gauge glass normal/emergency lighting			
Inspect bottom blow system material			
Inspect bottom blow valves for leak by			
Inspect for sliding feet movement			
Inspect gauges/instruments			
Inspect Stack Gas Analyzer			

2210	PROPULSION BOILERS		
Component/Sub-Component	Proposed Procedure	Accepted Procedure	
Inspect Periscope			
Inspect smoke pipe expansion joint			
Inspect Boiler Casing and Insulation			
Inspect Sample Coolers			
Inspect drain valve piping			
Test ABC system 28 VDC UPS			
Inspect Elec ABC system laptop computer			

2550	MAIN FEED PUMPS		
Component/Sub-Component	Proposed Procedure	Accepted Procedure	
Test low suction trip			
Test low lube oil trip			
Test low lube oil alarm			
Test speed limiting governor			
Test overspeed trip			
Test/Sample lube oil			
Inspect roll over			
Test combination exhaust/relief valve			
Test electric lube oil pump auto start			
Inspect pump packing gland/mechanical seal			
Inspect flange shields			
Inspect relief valves			
Inspect lube oil cooler			
Inspect gauges/instruments	CRL/CIL		

2550	MAIN BOOSTER PUMPS	
Component/Sub-Component	Proposed Procedure	Accepted Procedure
Test low pressure alarm		
Inspect gauges		
Test Automatic Start		
- Inspect pump motor controller		
- Inspect pump motor		
- Inspect pump packing gland/mechanical seal		

2511	FORCED DRAFT BLOWERS	
Component/Sub-Component	Proposed Procedure	Accepted Procedure
Test damper operation		

2610	FUEL OIL SERVICE PUMPS	
Component/Sub-Component	Proposed Procedure	Accepted Procedure
Test remote shut down		
Inspect electric fuel oil service pump		
Inspect mechanical seal leakage		
Test fuel oil service constant pressure control valve		
Test auto speed advance/low pressure shut down		
Inspect gauges		
Flush revolving basket strainer		
Shift duplex strainer		
Inspect discharge relief valve for modification/tag out		

2550	DEAERATING FEED TANK	
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Component/Sub-Component	Proposed Procedure	Accepted Procedure
Inspect for leaks		
Inspect DFT relief valve		
Inspect DFT vacuum breaker		
Inspect DFT gauge glass		
Test DFT gauge glass hand easing gear		
Inspect gauges/instruments		

2550	EMERGENCY FEED PUMP	
Component/Sub-Component	Proposed Procedure	Accepted Procedure
Demonstrate operation and feed boiler successfully for 10 minutes		
Inspect for water leakage		
Inspect for steam leakage		
Inspect pump discharge relief valve		
Inspect gauges/instruments		

2211	BOILER INSPECTION DEVICE	
Component/Sub-Component	Proposed Procedure	Accepted Procedure
Test boiler inspection device		
Inspect boiler inspection device case		

ADMIN/DOCUMENTATION		
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Component/Sub-Component	Proposed Procedure	Accepted Procedure
BW/FW records (last 3 months)		
Bottom blow UT records		
Soot blow ppg UT records		
Soot blow head UT records		
Burner barrel hydrotest records		
Boiler workcenter CSMP		
Oil lab workcenter CSMP		
Boiler controls workcenter CSMP		
Boiler related CASREP's		
Boiler related DFS's		
Daily fuel & water report		
Safety valve settings & date		

Component/Sub-Component	Proposed Procedure	Accepted Procedure
Test Main Condenser SW Inlet Valve		
Test Main Condenser SW Outlet Valve		
Test Scoop Injection SW Inlet Valve		
Test Auxiliary Exhaust Valve		
Test Main Circ Pump Emerg Bilge Suction Valve		
Test Main Engine Guarding Valve		
Test Throttle Valves		
Inspect Turbine Gland Seal Regulating Valve		
Inspect Turbine Gland Seal Dump Valve		
Inspect Turbine Crossover Piping Sentinel Valves		
Test Main Circ Pump Speed Limiting Governor		
Inspect Exhaust Trunk Thermometer		
Inspect Air Ejectors		
Inspect Drain systems		

2320	MAIN ENGINES
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2410	REDUCTION GEARS
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Component/Sub-Component	Proposed Procedure	Accepted Procedure
Inspect Sump Level and Lube Oil Condition		
Inspect Gear Teeth, Lube Oil Spray Pattern, Casing Interior		
Inspect Attached LO Pump Angle Drive Gear		
Inspect Oil Flow in SFI's		
Inspect Temperature Gauges		
Inspect Casing Exterior		
Inspect Vent Fog Precipitator		
Inspect Thrust Block		
Test Shaft Turning Gear and Locking Device		
Test Attached LO Pump Engage/Disengage		
Inspect Security Devices		
Inspect Piping Systems		
Inspect Flange Shielding		
Dehumidifier		

Component/Sub-Component	Proposed Procedure	Accepted Procedure
Inspect/Sample lube oil		
Inspect Sump Drain Valve		
Inspect Seals		
Inspect Thermometers		
Inspect Lubricator		
Inspect Dip Stick		
Inspect Lock Wires		
Inspect Bearing Depth Mic Surface		

2430	STERN TUBE SEALS	
Component/Sub-Component	Proposed Procedure	Accepted Procedure
Inspect Gauges		
Inspect Cooling Water Piping		
Inspect/shift Cooling Water Strainer/Filter		
Test Cooling Water Low Flow Alarm		
Inspect underway seal leakage rate		
Inspect LP Air Supply		
Inspect LP Piping/Hoses/Fittings		
Inspect CO2/N2 Piping/Fitting		
Test Inflatable Seal		
Inspect Emergency Flax Packing Kit		
Inspect Backing Ring		

2990	LINE SHAFT BEARINGS
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2620	LUBE OIL SYSTEMS
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Component/Sub-Component	Proposed Procedure	Accepted Procedure
Test Main Engine Lube Oil Sequencing		
Test Main Engine Low Lube Oil Alarm		
Test/Inspect Electric Lube Oil Pump <ul style="list-style-type: none"> <li>- Motor</li> <li>- Flexible coupling</li> <li>- Mechanical Seals</li> <li>- Valves and piping</li> </ul>		
Inspect SLOP Lube oil sump level		
Test/Inspect Steam Lube Oil Pump (SLOP) <ul style="list-style-type: none"> <li>- Turbine</li> <li>- Pump</li> <li>- Mechanical Seals</li> <li>- Valves and piping</li> </ul>		
Test combination/exhaust relief valve		
Test SLOP speed limiting governor		
Inspect attached Main Engine Lube Oil Pump <ul style="list-style-type: none"> <li>- Coupling</li> <li>- Mechanical Seals</li> </ul>		
Inspect Lube Oil Strainer Baskets		
Inspect Lube oil cooler		
Inspect Lube Oil Strainer Enclosure		
Inspect Flexible hose assemblies		
Inspect system flange shields		
Inspect lube oil pump relief valves/test data tag		
Inspect gauges and instruments		
Inspect Temp Regulating Valve		
Inspect Unloading Valve		
Demonstrate Lube Oil Purifier Operation		

<b>2620</b>	<b>LUBE OIL SYSTEMS</b>
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Component/Sub-Component	Proposed Procedure	Accepted Procedure
- Inspect Lube Oil Purifier Flexible hoses		
- Inspect Lube Oil Purifier Heater relief valve/test data tag		
- Inspect Lube oil heater		
- Demonstrate L/O purifier emergency stop		
- Demonstrate Lube Oil Purifier Efficiency		

<b>2500</b>	<b>CONTROLS</b>	
Component/Sub-Component	Proposed Procedure	Accepted Procedure
Test EOT Indicator		
Test RPM Indicator		
Test Console Alarms and Indicators		
Test Wrong Direction Alarm		
Bell Logger		

<b>1130</b>	<b>HULL STRUCTURE</b>	
Component/Sub-Component	Proposed Procedure	Accepted Procedure
Inspect Bilges/Angle Irons		
Inspect Deck Plates		
Inspect Equipment Foundations and resilient mounts		
Inspect Paint and Preservation		
Inspect Pipe Brackets/Hangers		
Inspect Lighting		

<b>3110</b>	<b>GENERATORS</b>
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Component/Sub-Component	Proposed Procedure	Accepted Procedure
Inspect Sump Level		
Inspect Lube Oil Condition		
Inspect Lube Oil SFIs		
Inspect Vent Fog Precipitator		
Inspect/Shift Lube Oil Strainer		
Airbox Telltale Drains		
Test Alarm Panel		
Inspect Gland Seal Operation		
Test Governor High and Low Speed Stops		
Test Aux Circ Pump		
- Inspect Aux Circ Pump Motor		
- Inspect Aux Circ Pump Controller		
Test Aux Cond Pump		
- Inspect Aux Cond Pump Motor		
- Inspect Aux Cond Pump Controller		
Inspect Aux Air Ejectors		
Test Lube Oil Pump Autostart		
Test Low Lube Oil Alarm		
Test Low Lube Oil Trip		
Inspect Turbine Casing Relief Valve		
Test Overspeed Trip		
Test Manual Trip		
Test Back Pressure Trip		
Test Auxiliary Condenser SW Inlet Valve		
Test Auxiliary Condenser SW Outlet Valve		

3110	GENERATORS
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Component/Sub-Component	Proposed Procedure	Accepted Procedure
Inspect centrafilter		
Test centrafilter DP alarm		
Inspect aux exh dump valve		
Inspect flange shields		
Inspect duplex oil filter(GOV)		
Inspect Aux Condenser sight glass		
Inspect LO Cooler		

	ICAS
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Component/Sub-Component	Proposed Procedure	Accepted Procedure
Verify operational status of each workstation	ICAS Tech Manual	
Verify number of required portable data terminals (PDT) and that they are operational	ICAS Tech Manual	
Verify number of required portable diagnostic aids (PDA) and that they are operational	ICAS Tech Manual	
Are any critical system errors shown in the system log?	ICAS Tech Manual	
Ensure data for at least two routes from actual rounds	ICAS Tech Manual	
Ensure data from Data Acquisition devices is being received as required	ICAS Tech Manual	
Verify Demand Data is received and processed accurately	ICAS Tech Manual	
Verify database data is received and processed accurately	ICAS Tech Manual	
Ensure router connections are operating properly	ICAS Tech Manual	
Ensure remote demand data and database data are available to be viewed.	ICAS Tech Manual	
Verify all required system links are available	ICAS Tech Manual	
Verify all ICAS printers are operational	ICAS Tech Manual	
Verify picture book is available for vibration checks	ICAS Tech Manual	
Verify vibration data is being taken per PMS	ICAS Tech Manual	
Verify vibration disc are installed on all equipment	ICAS Tech Manual	
Conduct vibration surveys on selected equipment during the full power demonstration	ICAS Tech Manual	
Inspect all cabinet air filters	MIP 2020 (M-3)	
Inspect all ICAS computer equipment	MIP 2020 (A-1R)	
Inspect computer internal shocks and fans	MIP 2020 (M-3)	

MAIN PROPULSION UNDERWAY PHASE LCC 19		
	TEAM ARRIVAL	
Component/Sub-Component	Proposed Procedure	Accepted Procedure
Check applicable equipment for correction of deficiencies.		
Tour space, ensure ready for sea.		
	MISCELLANEOUS	
Component/Sub-Component		
Inspect Oil Lab, sampling equipment	NSTM 220	
Complete Open and Inspect List and give a copy to the Engineer Officer.		
	CHELANT TREATMENT SYSTEM	
Component/Sub-Component	Proposed Procedure	Accepted Procedure
Inspect Spill Locker and inventory		
Inspect hydrazine locker		
Inspect injection cabinet		
Inspect chelant treatment tank and associated equipment		
Inspect eyewash station		